

Town of Pomfret
5218 Pomfret Rd.
Pomfret Vermont 05053

RE: INVITATION FOR BIDS: **POMFRET D4-0166-20**

Ladies and Gentlemen:

The Town of Pomfret requests bids for **POMFRET D4-0166-20**

Work done under this Contract will utilize federal funds.

Davis Bacon Wage Rates apply to this project.

Unit Price Proposals are being requested from three (3) or more contractors. Completed proposals will be considered as detailed in this solicitation.

Sealed bids from contractors shall be accepted until **12:00 PM, prevailing time on November 29, 2017** at the Pomfret Town Office 5218 Pomfret Road North Pomfret, VT 05053 for the construction of the project hereinafter described.

Bid opening will occur on **November 29, 2017** at 6:00 PM. The time of receiving and opening bids may be postponed due to emergencies or unforeseen conditions.

Sealed BIDS shall be marked in the lower left hand corner: Bid Documents:
POMFRET D4-0166-20

ENGINEERS ESTIMATE: For this Proposal the Engineers Estimate is between \$0 and \$300,000.

CONTRACT COMPLETION DATE: **December 22, 2017**

PREBID CONFERENCE: A mandatory pre-bid conference will be held for the project on **November 27, 2017 12:00 PM at the project site.**

STANDARD SPECIFICATIONS: This contract is governed by the VAOT 2011 STANDARD SPECIFICATIONS FOR CONSTRUCTION, as modified.

QUESTIONS: During the advertisement phase of this project all questions shall be addressed solely to Scott Woodward (802) 332-3953 or email at scott.woodward@pomfretvt.us. Any information obtained by, or provided to, a bidder other than by formal amendment to the solicitation shall not constitute a change to the solicitation.

NON-COLLUSION AFFIDAVIT: All bidders will be required to execute a sworn statement, certifying that the bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract.

DEBARMENT AFFIDAVIT: All bidders will be required to execute a sworn statement, certifying that the bidder has not within the last three (3) years, suspended, debarred, voluntarily excluded or determined ineligible by any Federal or State Agency; does not have a proposed suspension, debarment, voluntary exclusion or ineligibility determination pending; and has not been indicted, convicted or had civil judgment rendered against (it, him, her, them) by a court having jurisdiction in any matter involving fraud or official misconduct within the past three (3) years.

EQUAL EMPLOYMENT OPPORTUNITY (EEO) CERTIFICATION: Certification is required by the Equal Employment Opportunity regulations of the Secretary of labor (41 CFR 60-1.7(b) (1)) and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Generally only contracts and subcontracts of \$10,000 or under are exempt as set forth in 41 CFR 60-1.5.

NON-DISCRIMINATION IN FEDERALLY ASSISTED CONTRACTS: The State hereby notifies all bidders that it will insure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the basis of race, color, religion, sex or national origin for an award.

INSTRUCTIONS TO BIDDERS

1. Bid Preparation and Submission

- a. Bidders are expected to examine the specifications, drawings, all instructions and, the construction site. Failure to do so will be at the bidders' risk.
- b. All bids must be submitted on the forms provided in this solicitation. Bidders shall furnish all the information required by the solicitation. Bids must be signed and the bidders name typed or printed on the bid sheet and each continuation sheet which requires the entry of information by the bidder. Erasures or other changes must be initialed by the person signing the bid. Bids signed by an agent shall be accompanied by evidence of the agent's authority. (Bidders should retain a copy of their bid for their own records.)
- c. All bid documents shall be sealed in an envelope which shall be clearly marked with the words "Bid Documents, any project or other identifying number, the bidder's name, and the date and time for receipt of bids.
- d. This solicitation requires bidding on all items, failure to do so will disqualify the bid.

- e. Unless expressly authorized elsewhere in this solicitation, alternate bids will not be considered.
- f. Unless expressly authorized elsewhere in this solicitation, bids submitted by telegraph or facsimile (fax) machines will not be considered.
- g. In case of a discrepancy between a unit price written in words and one entered in figures, the price written in words shall govern.
- h. In case of a discrepancy between the bid total written in words and that entered as a figure, the written words shall govern.

2. Amendments to Invitation for Bids

- a. If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.
- b. Bidders shall acknowledge receipt of any addenda to this solicitation (1) by identifying the addendum number and date on the bid form, or (2) by letter, telegram, or facsimile, if those methods are authorized in this solicitation. Bids which fail to acknowledge the bidders receipt of any addenda will result in the rejection of the bid.
- c. Addenda will be on file at Pomfret Town Office 5218 Pomfret Road North Pomfret, VT 05053 at least 5 days before the bid opening.

3. Responsibility of Prospective Contractor

- a. If a bidder submits a unit bid price of zero for a contract bid item, the bid will be declared informal.
- b. A bidder may submit a unit bid price that is obviously below the cost of the item. If the State awards and enters into a contract with a Bidder that has submitted a unit bid price that is obviously below cost, the contractor shall be obligated to perform the work under such item as indicated in the contract documents and/or as directed by the Engineer.

4. Availability of Lands for Work, Etc.

- a. The lands upon which the Work is to be performed, rights of way and easement for access thereto and other lands designated for use by the contractor in performing the Work are identified in the contract documents. All additional lands and access thereto required for temporary construction facilities, construction equipment or storage of materials and equipment to be incorporated in the work are to be obtained and paid for by the Contractor.

5. Familiarity with Laws, Ordinances and Regulations

- a. By submitting a bid an entity certifies that it is familiar with all Federal, State and local laws, ordinances and regulations which affect in any way the materials, equipment, haul roads used in or upon the work, the conduct of the work, and the persons engaged or employed in the performance of the work to be performed pursuant to the contract.
- b. By submitting a bid an entity certifies that it shall forthwith report in writing to the State any provision in the plans, proposal, specifications or proposed contract that the bidder/contractor believes is in conflict with or inconsistent with any Federal, State or local law, ordinance, or regulation.
- c. By submitting a request for a proposal a prospective bidder/contractor certifies that no claim or defense of ignorance or misunderstanding concerning Federal, State or local laws, ordinances and/or regulations will be employed by a bidder/contractor or considered by the State in claims, litigation, alternative dispute resolution procedures, or other matters concerning the contract for which the bid is submitted.

6. Late Submissions, Modifications, and Withdrawal of Bids

- a. Any bid received at the place designated in the solicitation after the exact time specified for receipt will not be considered.
- b. Any modification or withdrawal of a bid is subject to the same conditions as in paragraph a. of this provision.
- c. Bids may be withdrawn by written notice or facsimile machine transmission received at any time before the exact time set for opening of bids. A bid may also be withdrawn in person by a bidder or its authorized agent if , before the exact time set for opening of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

7. Bid Opening

- a. All bids received by the date and time specified in the solicitation will be publically opened and total bid amounts read aloud. The time and place of opening will be as specified in the solicitation. Bidders and other interested persons may be present.

8. Rejection of Proposals

- a. A Proposal may be declared “Informal” and hence rejected if it shows any alteration of form, omissions or additions not called for in the proposal, lacks proper signatures, is a conditional bid, has alternate bids unless required in the proposal, has irregularities of any kind, has changes to the printed content, is submitted on a form not furnished by the Town, is incomplete, fails to acknowledge receipt of one or more addendums, or includes a clause in which the bidder reserves a right to accept or reject the contract award.

- b. A proposal may be rejected at the time of bid opening or following analysis to confirm the proposal.
- c. The Town may reject any or all proposals, waive any or all technicalities, and/or advertise for new proposals if in its sole judgment, or that of the awarding authority, the best interests of the Town, or the awarding authority, will be served.
- d. A proposal submitted without a completed Debarment and Non-Collusion Affidavit will be rejected.
- e. A proposal submitted without a signed Contractors Equal Employment Certification Form will be rejected.
- f. The Town will decide whether any bid prices are unbalanced above or below a reasonable cost analysis value. Proposals in which bid prices are unbalanced, mathematically and/or materially, may be rejected at the sole discretion of the Town. For purposes of this subsection “mathematically unbalanced bid” and “materially unbalanced bid” shall have the same meaning as in 23 CFR Part 635 – Construction and Maintenance.
- g. Prospective bidders may be disqualified for various reasons including (a) Submission of more than one proposal for the same work by an entity under the same or different names, (b) Evidence of collusion among bidders, or (c) Any other cause for suspension or debarment as detailed in the Agency’s policy and Procedures on Debarment, Code of Vermont Rules (CVR), Volume 8A, 14 010 004, pages 1-10.

9. Contract Award

- a. The Town will evaluate bids in response to this solicitation without discussions and will award a contract to the lowest responsive and responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the Town considering only price and any price related factors specified in the solicitation.
- b. Opened proposals will be considered and submitted bids confirmed on the basis of the summation of the products of the quantities shown in each proposal’s Schedule of Items multiplied by the unit prices bid. In the event of a discrepancy between a unit price and the calculated extension, the product based on the unit price bid and the mathematically correct summation of the products shall govern.
- c. If the apparent low bid received in response to this solicitation exceeds the State’s available funding for the proposed work the State may reject the bid.
- d. The Town may reject any and all bids, waive any or all technicalities, and/or advertise for new proposals if in its sole judgment the best interests of the Town will be served.

e. The Town may reject any bid as nonresponsive if it is materially unbalanced as to the prices for the various items of work to be performed. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

f. A written award shall be furnished to the successful bidder within the period for acceptance specified in the bid and shall result in a binding contract without further action by either party.

10. DBE Requirements

a. There are to be no mandatory Contract goals for DBE compliance on this project. Bidders are advised, however, that a list of Subcontractors and approximate Contract Values will be required as part of the fully executed Contract for the successful Bidder as a means of evaluating DBE participation.

11. Contract Documents

The following provisions and supplemental specifications are included in this proposal and are effective for this contract. Proposal holders are reminded to check the contents of this proposal against the following index. In the event that you suspect or determine the proposal is incomplete, contact Scott Woodward (802) 332-3953 or email at scott.woodward@pomfretvt.us.

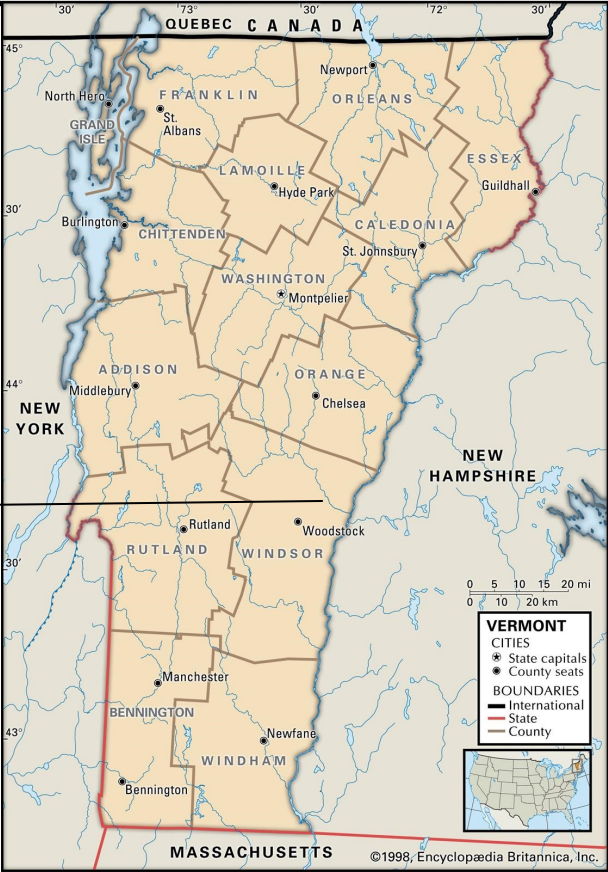
Bid Proposal Form

- General Special Provisions for All Projects
- Project Special Provisions
- Contractors EEO Certification Form CA-109

Debarment & Non-Collusion Affidavit CA-91

- Required Contract Provisions for Federal-Aid Construction, FHWA Form 1273
- Standard Federal EEO Specifications, (Executive Order 11246) CA-26
- Certification of Federal Aid Contracts CA-163
- US Department of Labor Davis-Bacon Rates, as amended by State of Vermont ACT 54
- Disadvantaged Business Enterprise (DBE) Policy Contract Requirements CA-110
- Vermont Agency of Transp. Contractor Workforce Reporting Requirements CA-26A
- Vermont Minimum Labor & Truck Rates CA-101

POMFRET RD FAS-0166-20



SITE

POMFRET Road FAS-0166-20 Mile Marker 9.552

NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS AND THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, INCLUDING ALL SUBSEQUENT REVISIONS AND REVISED SPECIFICATIONS AND SPECIAL PROVISIONS INCORPORATED IN THESE PLANS.
2. A MINIMUM OF ONE LANE TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.

POMFRET RD FAS-0166-20

Drawn by: Jack Holding

Project Manager: Chris Bump
Sheet 1 of 11

INDEX OF SHEETS

Page

- 1. Title Sheet
- 2. Index & General Notes
- 3. Detail Sheet Site
- 4. Typical Section
- 5. Plan Sheet Site
- 6. Cross Section

VAOT DESIGN STANDARDS

- T-1
- T-10
- T-28
- MUTCD (TA-10)

GENERAL NOTES

- ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS AND THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, INCLUDING ALL SUBSEQUENT REVISIONS AND REVISED SPECIFICATIONS AND SPECIAL PROVISIONS INCORPORATED IN THESE PLANS.
- EXISTING DIMENSIONS SHOWN IN THE PLANS WERE DEVELOPED FROM LIMITED FIELD SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS APPLICABLE TO THIS WORK.
- IN ACCORDANCE WITH SUBSECTION 107.12 THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING PAVEMENT, PAVEMENT MARKING, GUARDRAIL, FENCING, PIPES, DROP INLETS, CONCRETE SIGN FOUNDATIONS AND HEADWALLS. THE CONTRACTOR SHALL REPAIR ALL EXISTING PAVEMENT, PAVEMENT MARKING, GUARDRAIL, FENCING, PIPES, DROP INLETS, CONCRETE SIGN FOUNDATIONS AND HEADWALLS DAMAGED DURING CONSTRUCTION ACTIVITES TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COMPENSATION.
- THE CONTRACTOR SHALL REMOVE, STOCKPILE , AND REINSTALL SIGNS, MILE MARKER POSTS, AND DELINEATORS LOCATED WHERE REQUIRED WORK MAY CAUSE DAMAGE TO THEM. IF WARNING SIGNS THAT ARE NOT GATE POSTED ARE REMOVED THE CONTRACTOR SHALL TEMPORARILY INSTALL IN A LOCATION OUT OF THE WORKZONE, AND RE-INSTALL AFTER COMPLETION OF WORK.
- IT SHALL BE THE CONTRACTORS RESPONSILITY TO FIELD VERIFY LOCATION OF BURIED CABLE THROUGH DIG SAFE. BEFORE ANY CONSTRUCTION BEGINS PER ACT NO. 86 OF 1987 (30 VSA CHAPTER 86) ITEM 204.22. REQUIRES THAT NOTICE BE GIVEN TO DIG SAFE AT LEAST THREE (3) WORKING DAYS PRIOR TO MAKING AN EXCAVATION.
- STONE FILL MUST BE PLACED IN A MANNER THAT WILL NOT SEPARATE SMALL AND LARGE STONES. PLACEMENT BY DUMP TRUCK OR DOZER WILL NOT BE ALLOWED. REGULAR MIXING OF THE STONE FILL STOCKPILE DURING INSTALLA-TION MAY BE NECESSARY TO PREVENT SEPARATION OF SMALL AND LARGE STONES.
- THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING THE STONE FILL AS A WELL-COMPACTED MASS FULL DEPTH, WITH STONES INTERLOCKED WITH EACH OTHER AND WITH NO LARGE VOIDS TO REDUCE THE POTENTIAL FOR UPLIFT AND MOVEMENT AND TO PREVENT GRUBBING MATERIAL FROM WASHING INTO THE STONE.
- THE CONTRACTOR SHALL PLACE A 12” (MINIMUM) LAYER OF GRUBBING MATERIAL OVER THE TOP OF THE FINISHED STONE FILL SLOPE. GRUBBING MATERIAL SHALL BE WORKED IN TO THE STONE FILL MASS, AND INTO ANY SMALL REMAINING SURFACE VOIDS AND CREVASSES.
- ALL EQUIPMENT SHALL BE MOVED OUTSIDE OF THE CLEAR ZONE OR PROTECTED BY APPROVED BARRIERS DURING NON-WORKING HOURS.
- THE CONTRACTOR SHALL PROVIDE TOWN WITH ACCEPTABLE TRUCK SLIPS, SHOWING WEIGHTS AND/OR QUANTITIES, FOR ALL IMPORTED MATERIALS TO EACH SITE. TRUCK SLIPS SHALL INCLUDE MATERIAL SOURCE, TYPE AND QUANTITY FOR EACH ITEM.
- THE CONTRACTOR SHALL MAKE RESONABLE EFFORT TO REDUCE, AND CONTROL SEDIMENT EROSION.
- ESTIMATED QUANTITIES ARE NOT GUARENTEED, BUT ARE GIVEN AS THE BASIS OF COMPARISON.**
- A MINIMUM OF ONE LANE TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
- ALL TRAFFIC CONTROL SHALL CONFORM TO THE VAOT STANDARDS LISTED AND THE 2009 MUTCD.
- ALL WORK SHALL BE COMPLETED WITHIN THE STATE RIGHT OF WAY.
- DISPOSAL OF SURPLUS OR WASTE MATERIAL WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED AS INCIDENTAL WORK PERTAINING TO THE GRADING OR EXCAVATION CONTRACT ITEM FROM WHICH THE MATERIAL WAS OBTAINED. WHEN SUFFICIENT ON-SITE DISPOSAL AREAS ARE NOT SHOWN ON THE PLANS, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE DISPOSAL AREAS IN ACCORDANCE WITH SECTION 105 AND ANY APPLICABLE PERMITS.

POMFRET RD FAS-0166-20

Drawn by: Jack Holding

Project Manager: Chris Bump
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POMFRET RD FAS-0166-20



ESTIMATED QUANTITIES POMFRET ROAD			
Pay Item	Description	Quantity	
201.10	Clearing and Grubbing	1	LS
203.15	Common Excavation	596	CY
401.12	Aggregate Shoulders	25	TON
613.11	Stone Fill Type II	596	CY
635.11	Mobilization/Demobilization	1	LS
651.15	Seed	21	LB
651.18	Fertilizer	70	LB
651.20	Agricultural Limestone	0.14	TON
652.40	Grubbing Material	675	SY
653.20	Temporary Erosion Matting	675	SY
900.608	Granular Borrow	226	CY
900.645	Traffic Control (All Inclusive)	1	LS



LOCATION MAP



Location:

On POMFRET Rd. 1/8 East of the Junction with Handy Rd.
Located at mile marker 9.552
LAT 43.7196354 LONG -72.4375426

Work Summary:

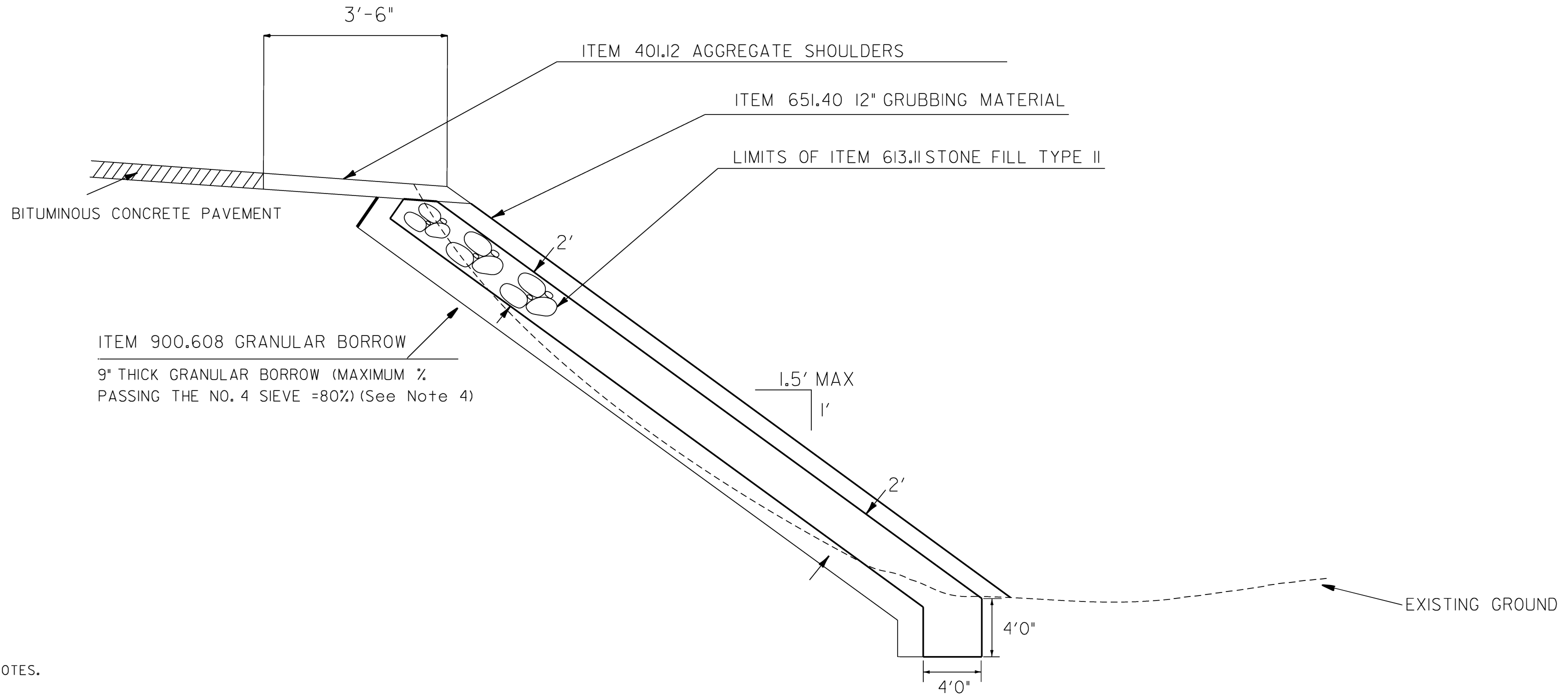
Repair failed slope approximately 185’ long by 32’ wide. Slope repair shall be in accordance with slope protection detail.

POMFRET RD FAS-0166-20

Drawn by: Jack Holding

Project Manager: Chris Bump
Sheet 3 of 11

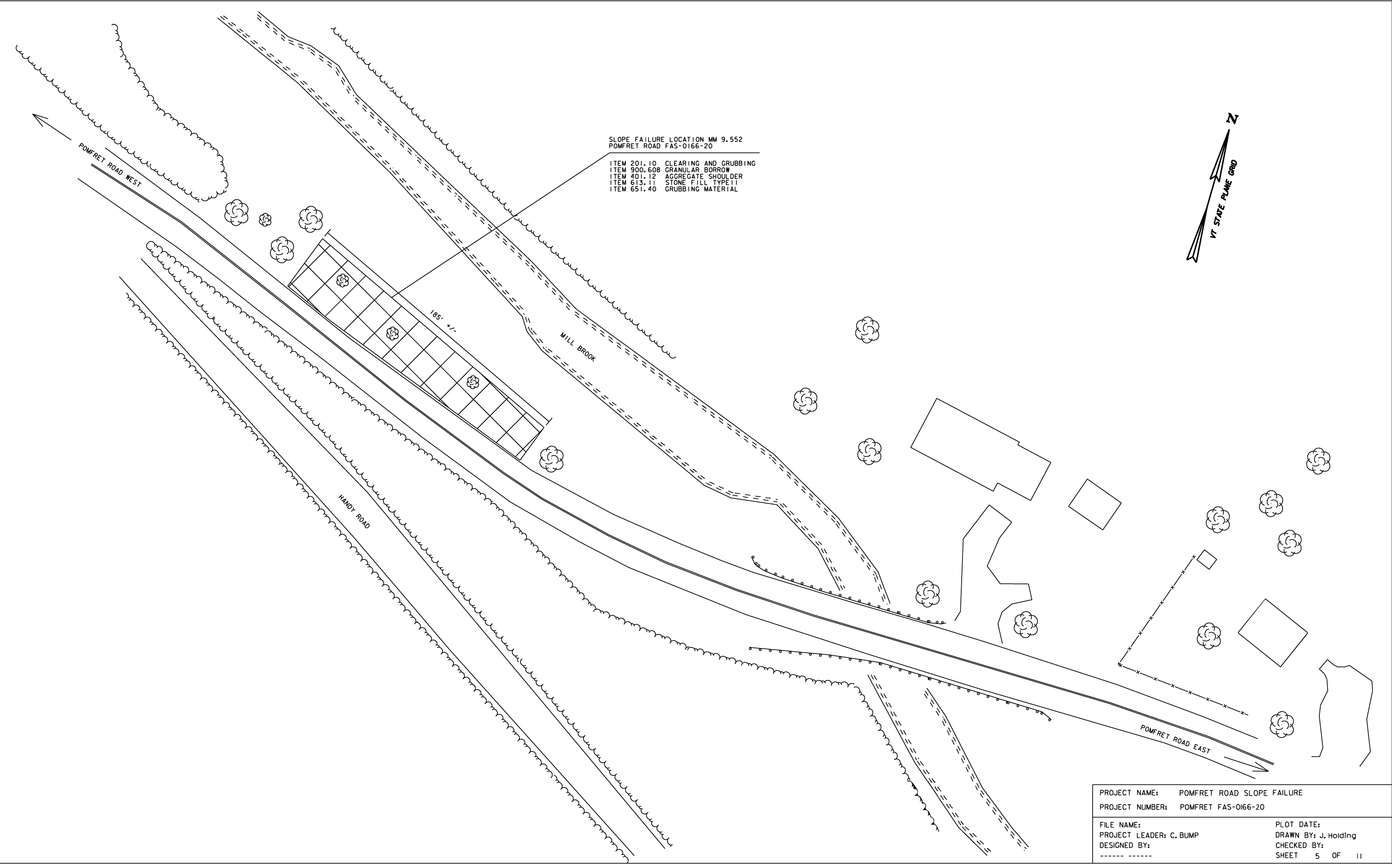
STONE FILL SLOPE PROTECTION



NOTES.

THE STONE SLOPE SHALL BE NO STEEPER THAN 1.5 TO 1.0 UNLESS DIRECTED BY THE ENGINEER.

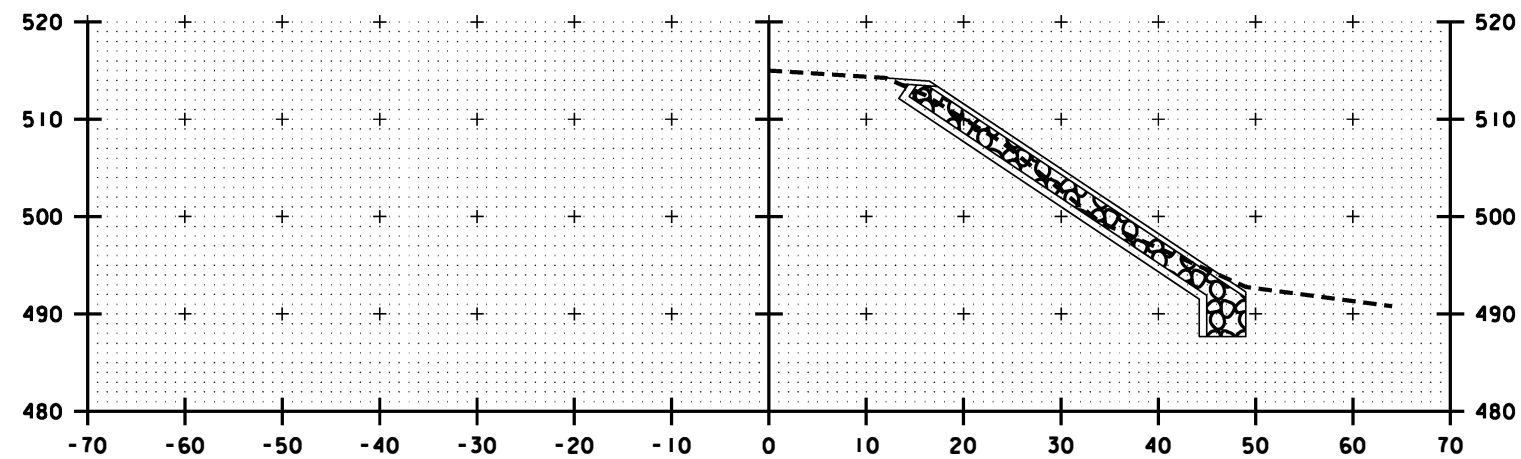
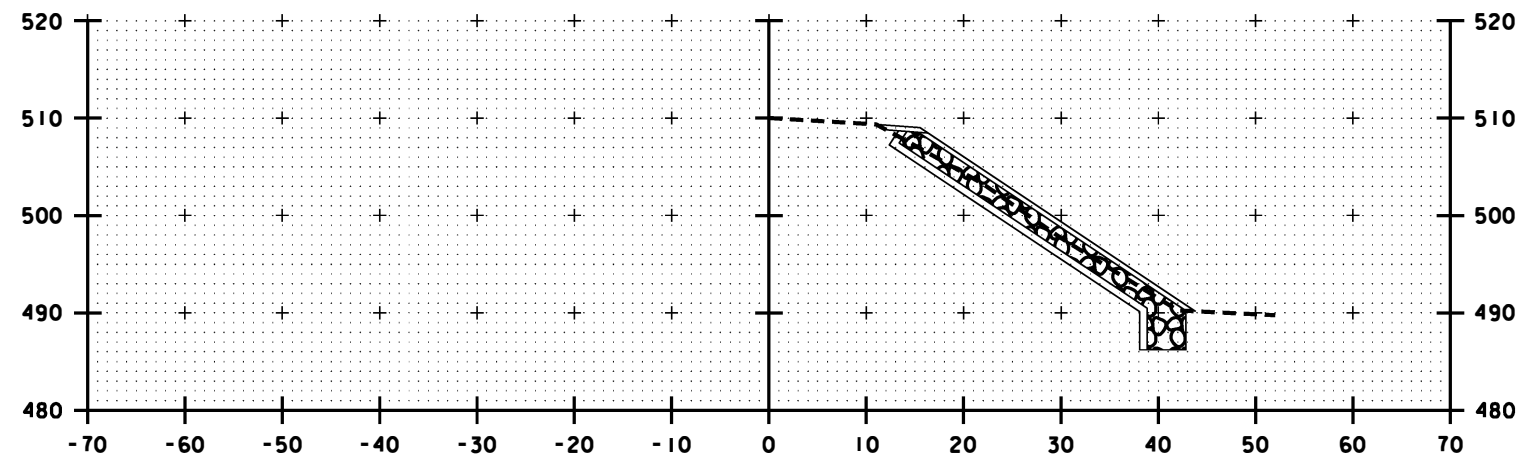
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PROJECT NUMBER:	
FILE NAME: TYPICAL SECTIONS	PLOT DATE: 11-15-2017
PROJECT LEADER: CHRIS BUMP	DRAWN BY: J. HOLDING
DESIGNED BY:	CHECKED BY: -----
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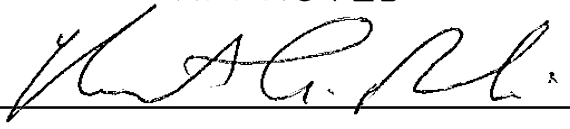
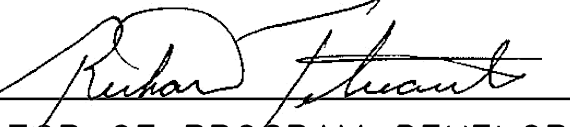
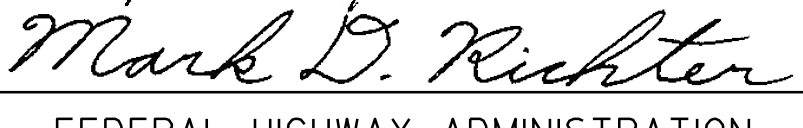
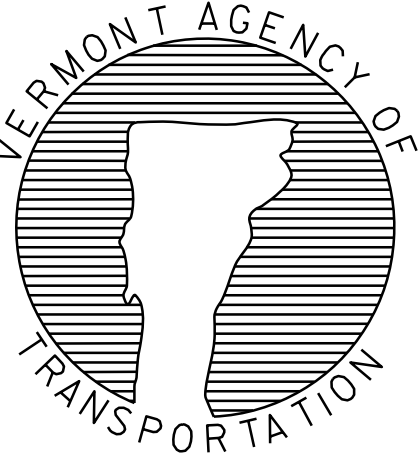
SLOPE FAILURE LOCATION MM 9.552
POMFRET ROAD FAS-0166-20

ITEM 201.10 CLEARING AND GRUBBING
ITEM 900.608 GRANULAR BORROW
ITEM 401.12 AGGREGATE SHOULDER
ITEM 613.11 STONE FILL TYPE II
ITEM 651.40 GRUBBING MATERIAL

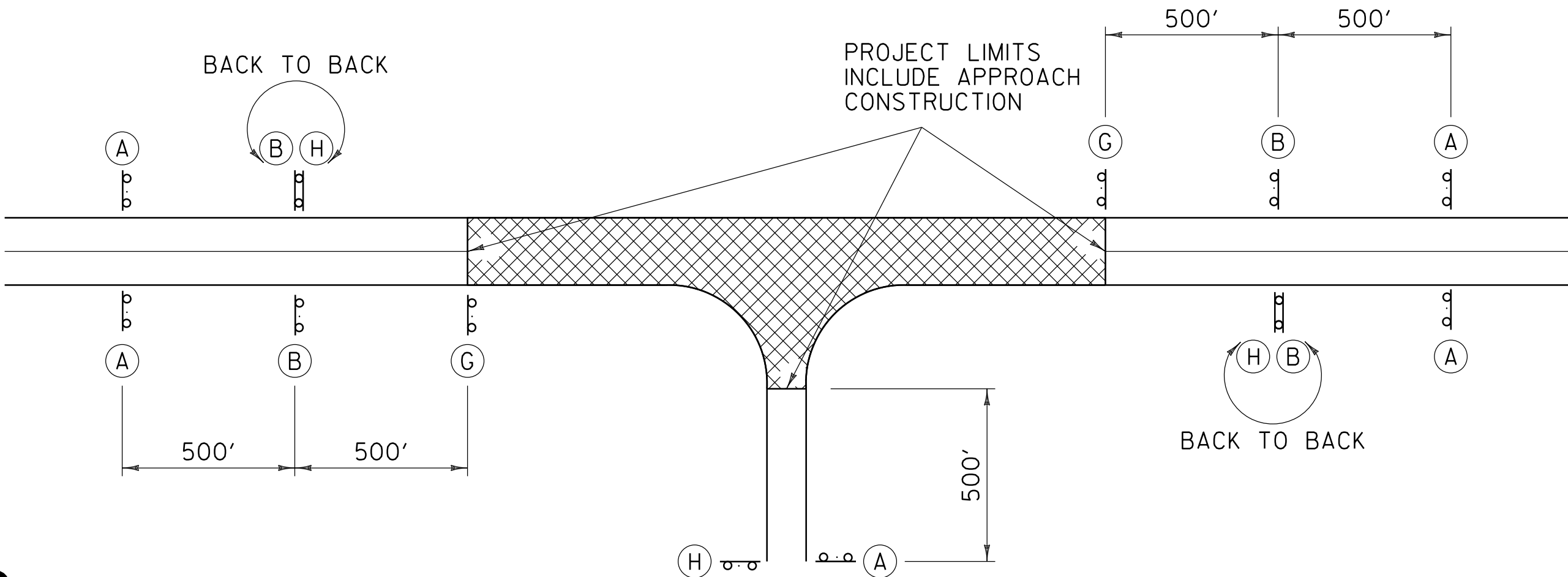
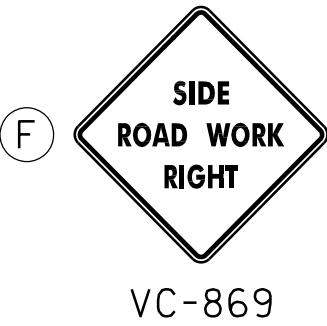
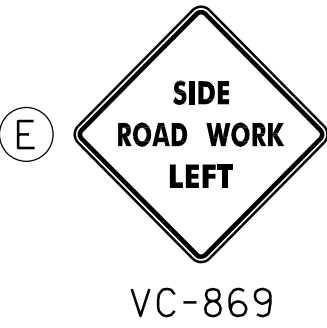
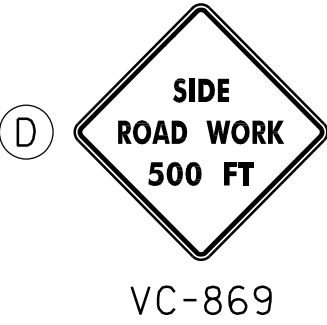
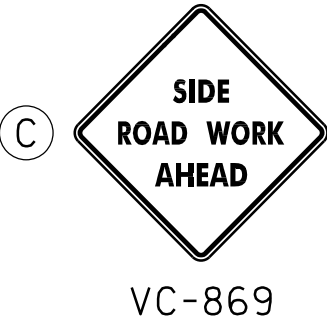
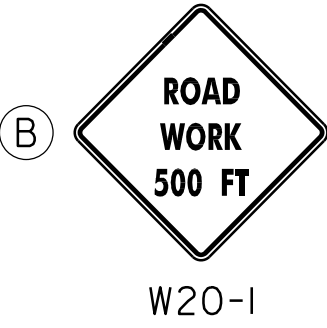
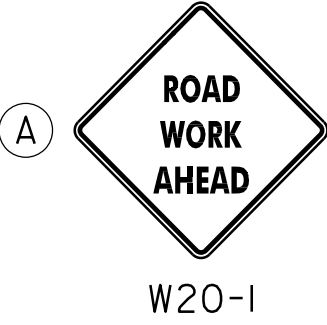
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PROJECT NUMBER: POMFRET FAS-0166-20	
FILE NAME:	PLOT DATE:
PROJECT LEADER: C. BUMP	DRAWN BY: J. Holding
DESIGNED BY:	CHECKED BY:
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PROJECT NAME: POMFRET ROAD	
PROJECT NUMBER: FAS-0166	
FILE NAME: MILE MARKER 9.552	PLOT DATE: 11-15-2017
PROJECT LEADER: C. BUMP	DRAWN BY: J. HOLDING
DESIGNED BY:	CHECKED BY:
CROSS SECTIONS	SHEET 6 OF 11

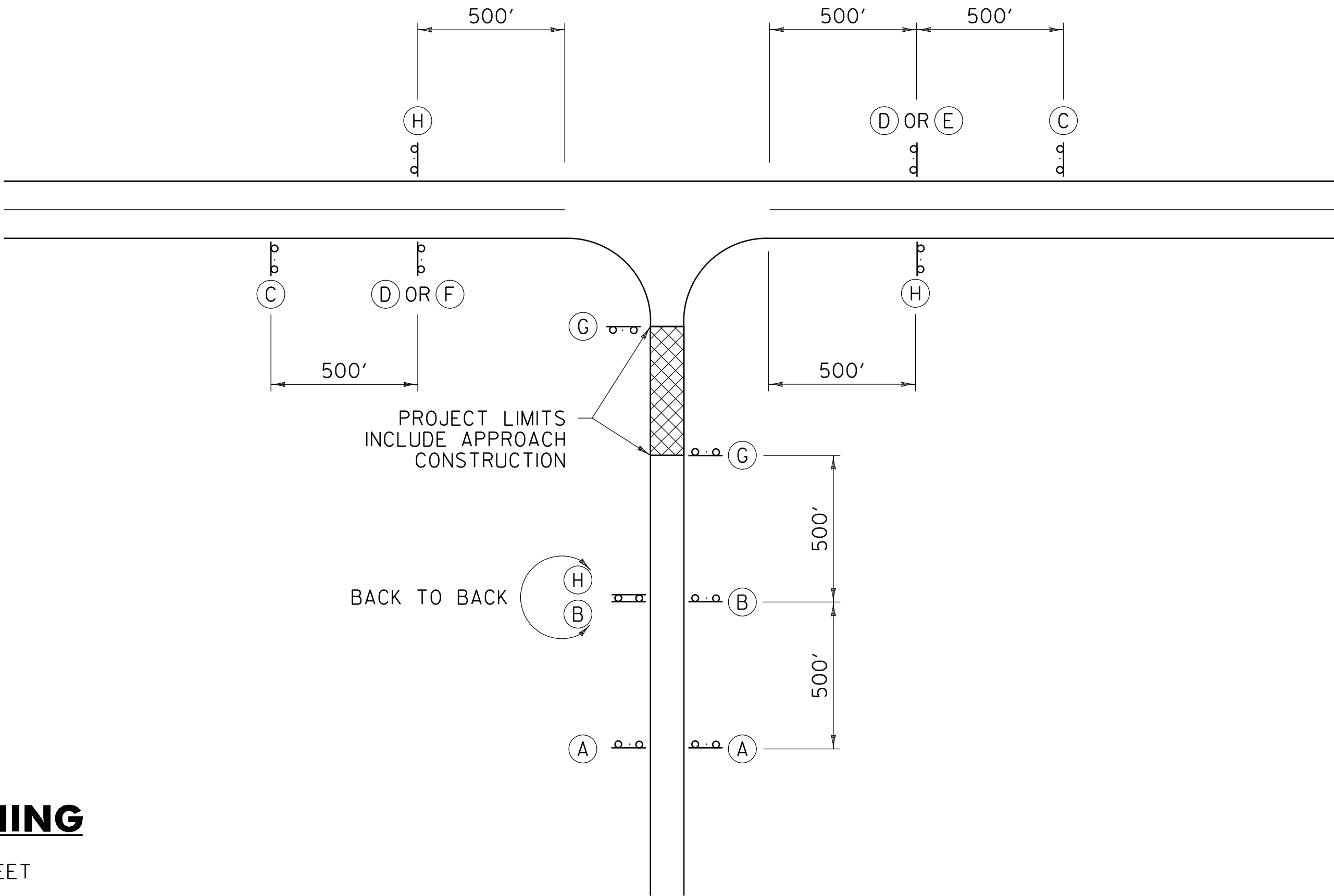
<div><div><div>1. TRAFFIC CONTROL DEVICES NOT DETAILED IN THE VERMONT AGENCY OF TRANSPORTATION (VAOT) "STANDARD DRAWINGS" OR THE PROJECT PLANS SHALL BE IN ACCORDANCE WITH THE "MANUAL ON TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).</div><div>2. CONSTRUCTION SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER.</div><div>3. CONSTRUCTION SIGN COVERS SHALL CONSIST OF A PANEL, PAINTED FLAT BLACK, THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.</div><div>4. SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.</div><div>5. NO CROSS-BRACING OR BACK-BRACING TO KEEP POSTS PLUMB WILL BE ALLOWED. CONCRETE FOUNDATIONS, COLLARS OR SOIL BEARING PLATES ARE NOT PERMITTED. CONSTRUCTION SIGNS SHALL BE PLACED ON TWO POSTS.</div><div>6. CONSTRUCTION SIGNS INSTALLED ON POSTS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST FIVE FEET ABOVE THE EDGE OF PAVEMENT AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT, FOUR FEET OUTSIDE GUARDRAIL, OR TWO FEET OUTSIDE CURBING OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST SEVEN FEET ABOVE THE SIDEWALK OR EDGE OF PAVEMENT, WHICHEVER IS HIGHER.</div><div>7. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AND A MINIMUM OF ONE FOOT ABOVE THE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.</div><div>8. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.</div><div>9. ROLL UP CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VI AND TYPE VII UNLESS OTHERWISE NOTED.</div><div>10. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VIII OR IX REQUIREMENTS UNLESS OTHERWISE NOTED.</div><div>11. WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE AASHTO "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POSTS. WHEN ANCHORS ARE INSTALLED, STUBS SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.</div><div>12. ROADWAY AND SHOULDER WIDTHS DEPICTED ON THE STANDARD DRAWINGS MAY VARY.</div><div>13. THESE STANDARD DRAWINGS ARE INTENDED TO SERVE AS VTRANS STANDARD OPERATING PROCEDURE. IT IS NOTED THAT COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL WORK ZONE MAY BE MODIFIED DUE TO FIELD CONDITIONS, AT THE DISCRETION OF THE ENGINEER.</div></div></div>			<div>OTHER STDS. REQUIRED: NONE</div>	
<div>REVISIONS AND CORRECTIONS</div> <div>AUG. 6, 2012 - ORIGINAL APPROVAL DATE</div>	<div>APPROVED</div> <div><div><div></div><div>HIGHWAY SAFETY & DESIGN ENGINEER</div></div><div><div></div><div>DIRECTOR OF PROGRAM DEVELOPMENT</div></div><div><div></div><div>FEDERAL HIGHWAY ADMINISTRATION</div></div></div>	<div>TRAFFIC CONTROL</div> <div>GENERAL NOTES</div>		<div></div> <div>STANDARD</div> <div>T-1</div>

LEGEND



TYPICAL APPROACH SIGNING

FIELD CONDITIONS MAY DICTATE THE ACTUAL PLACEMENT.



SIDE ROAD APPROACH SIGNING

TO BE USED WHEN CONSTRUCTION IS UP TO 1000 FEET FROM THE INTERSECTION. FIELD CONDITIONS MAY DICTATE THE ACTUAL PLACEMENT.

GENERAL NOTES:

- SIGNS SHOWN ON THIS SHEET ARE INTENDED FOR USE IN PROVIDING ADVANCE WARNING AND INFORMATION ON CONSTRUCTION PROJECTS OVER WHICH TRAFFIC WILL BE MAINTAINED. WHEN ADDITIONAL APPROACH SIGNS OR OTHER TYPES OF ADVANCE SIGNING OR CONTROL ARE NECESSARY, THE PLANS AND/OR THE SPECIFICATIONS FOR THAT PROJECT WILL GIVE THE DETAILS OF THE SIGNS AND DEVICES REQUIRED. FOR ON-PROJECT CONSTRUCTION SIGNS, REFER TO APPROPRIATE STANDARD SHEETS.
- THE "ROAD WORK NEXT XX MILES" SIGN (G20-1) SHALL BE INSTALLED IN ADVANCE OF TEMPORARY TRAFFIC CONTROL ZONES THAT ARE MORE THAN TWO MILES IN LENGTH OR AS DIRECTED BY THE ENGINEER. DISTANCES SHALL BE STATED TO THE NEAREST WHOLE MILE.
- SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

OTHER STDS. REQUIRED: T-1, T-28

REVISIONS AND CORRECTIONS
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

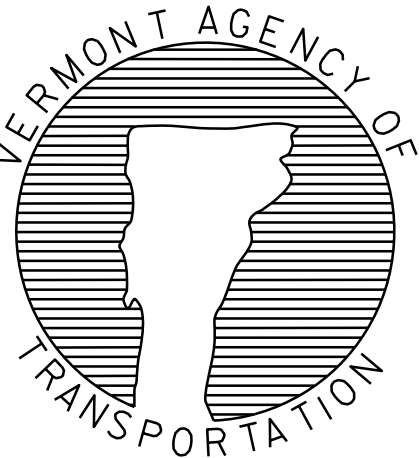
APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

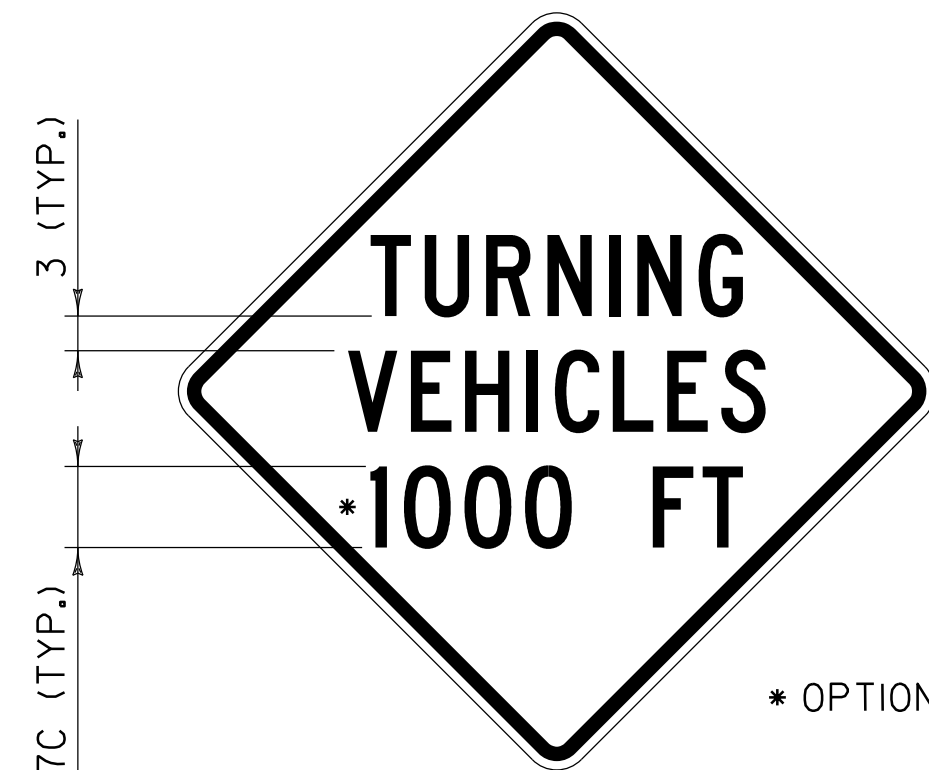
DIRECTOR OF PROGRAM DEVELOPMENT

MARK D. RICHTER
FEDERAL HIGHWAY ADMINISTRATION

CONVENTIONAL ROADS
CONSTRUCTION APPROACH
SIGNING

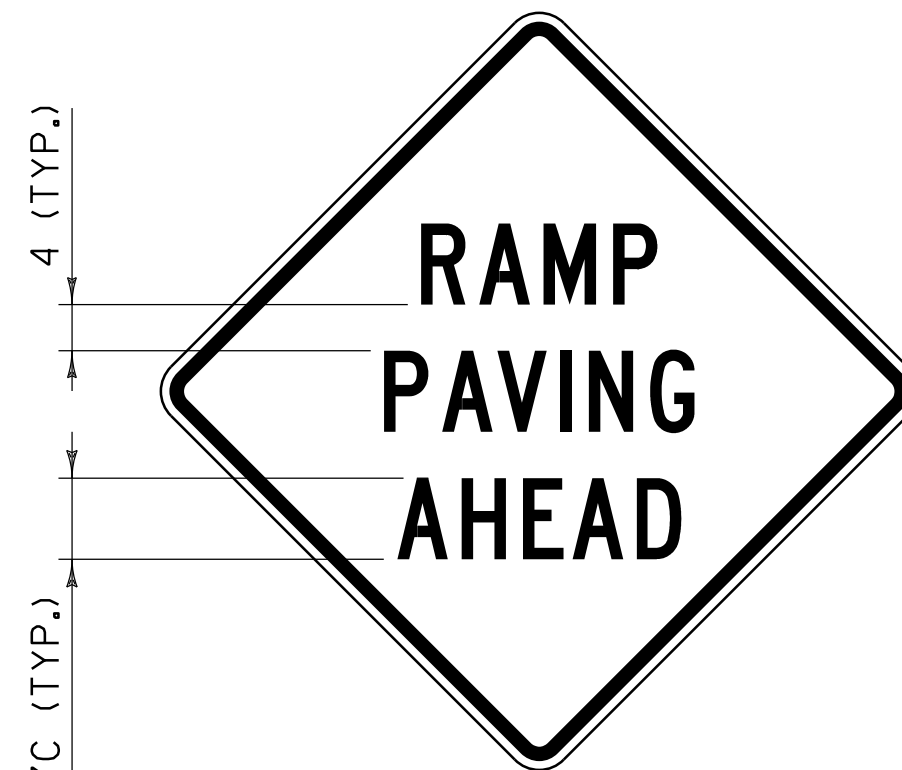


STANDARD
T-10

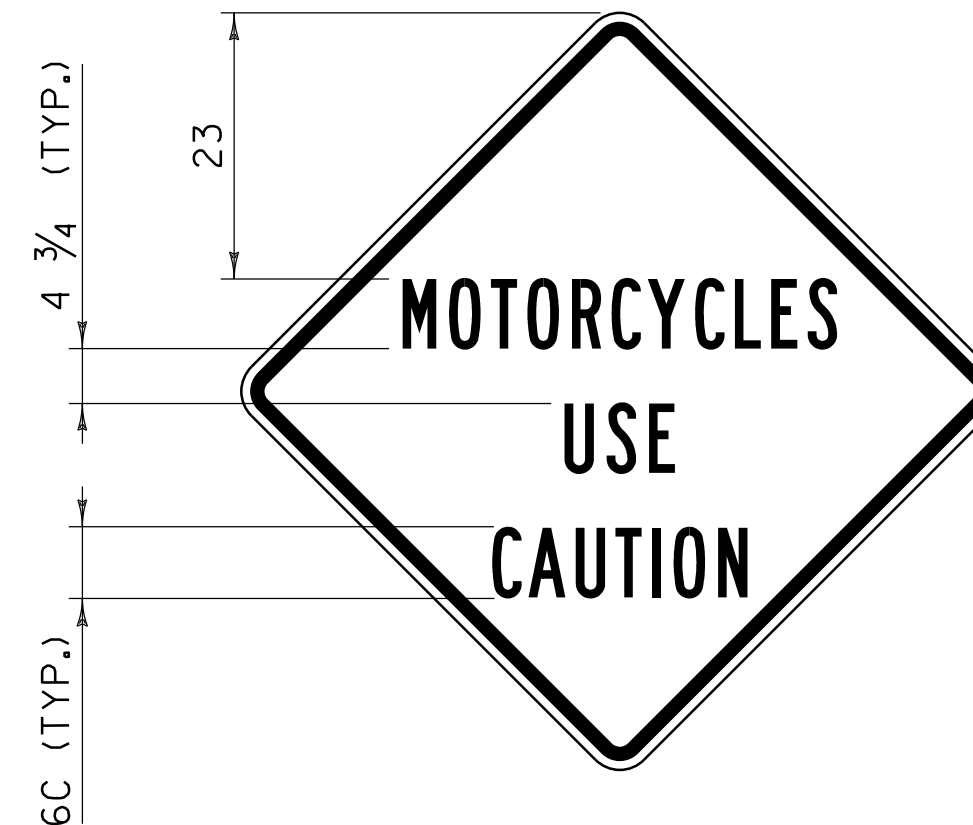


* OPTIONS { 500
1500

VC-001



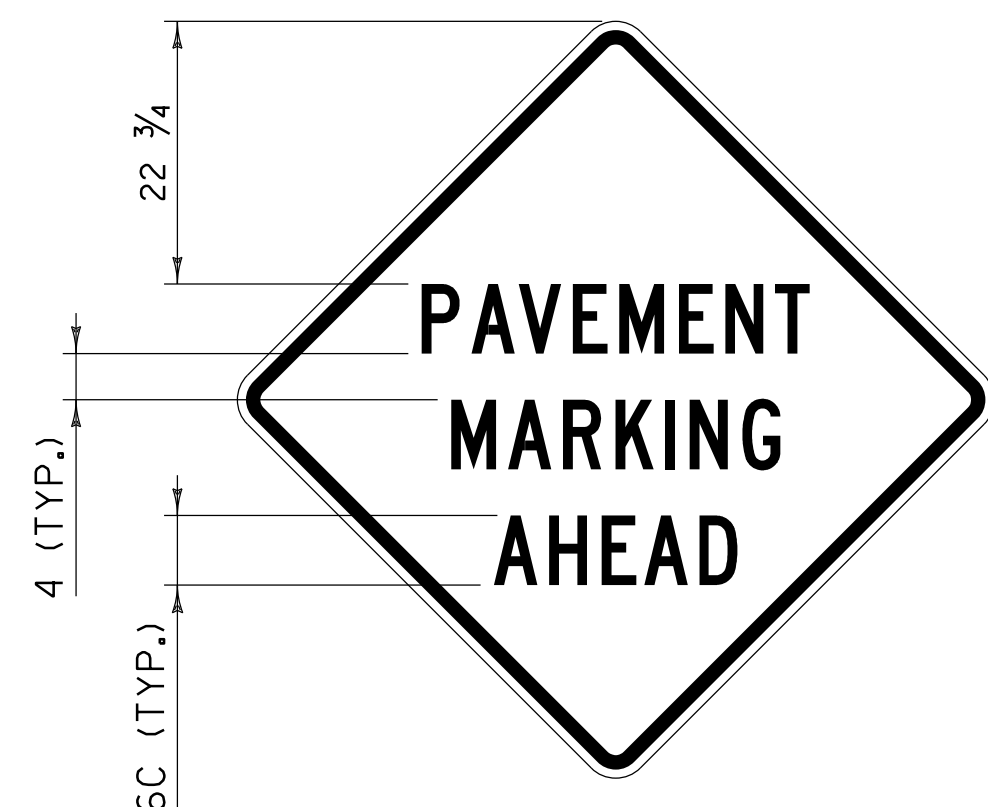
VC-003



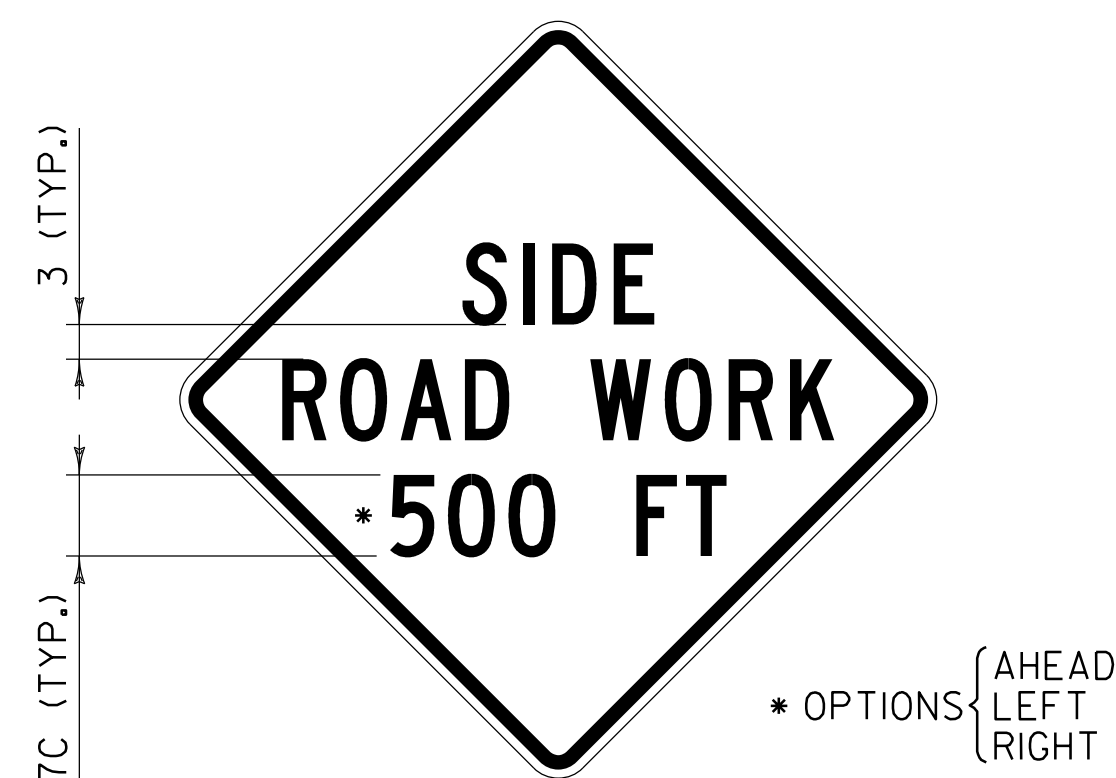
VC-004



VC-008



VC-813



* OPTIONS { AHEAD
LEFT
RIGHT

VC-869



VC-874

GENERAL NOTES:

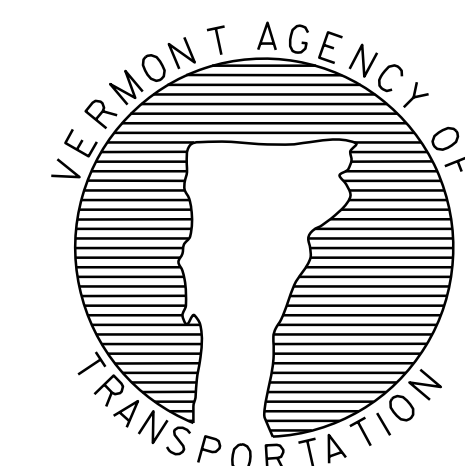
1. COLORS FOR SIGNS SHALL BE BLACK LEGEND AND BORDER ON FLUORESCENT ORANGE BACKGROUND.
2. CONSTRUCTION SIGNS SHALL BE 48 INCH BY 48 INCH. IF SOLID SUBSTRATE SIGNS ARE USED, SIGNS SHALL HAVE CORNERS ROUNDED TO A THREE INCH RADIUS.
3. SIGNS SHALL HAVE 1 1/4 INCH WIDE BORDERS THAT ARE INDENTED 3/4 INCH FROM THE EDGE OF THE SIGN.
4. SIGNS SHALL HAVE THE LEGEND CENTERED HORIZONTALLY AND VERTICALLY ON THE SIGN UNLESS OTHERWISE INDICATED.
5. ALL DIMENSIONS SHOWN IN INCHES.

**OTHER STDS.
REQUIRED: T-1**

REVISIONS AND CORRECTIONS
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED
W. A. G. M.
HIGHWAY SAFETY & DESIGN ENGINEER
Richard J. Thwait
DIRECTOR OF PROGRAM DEVELOPMENT
Mark D. Richter
FEDERAL HIGHWAY ADMINISTRATION

CONSTRUCTION SIGN
DETAILS



STANDARD
T-28

Table 6C-1. Recommended Advance Warning Sign Minimum Spacing

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed)*	100 feet	100 feet	100 feet
Urban (high speed)*	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

* Speed category to be determined by the highway agency
** The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)

Support:

07 The need to provide additional reaction time for a condition is one example of justification for increasing the sign spacing. Conversely, decreasing the sign spacing might be justified in order to place a sign immediately downstream of an intersection or major driveway such that traffic turning onto the roadway in the direction of the TTC zone will be warned of the upcoming condition.

Option:

08 Advance warning may be eliminated when the activity area is sufficiently removed from the road users' path so that it does not interfere with the normal flow.

Section 6C.05 Transition Area

Support:

01 The transition area is that section of highway where road users are redirected out of their normal path. Transition areas usually involve strategic use of tapers, which because of their importance are discussed separately in detail.

Standard:

02 When redirection of the road users' normal path is required, they shall be directed from the normal path to a new path.

Option:

03 Because it is impractical in mobile operations to redirect the road user's normal path with stationary channelization, more dominant vehicle-mounted traffic control devices, such as arrow boards, portable changeable message signs, and high-intensity rotating, flashing, oscillating, or strobe lights, may be used instead of channelizing devices to establish a transition area.

Section 6C.06 Activity Area

Support:

01 The activity area is the section of the highway where the work activity takes place. It is comprised of the work space, the traffic space, and the buffer space.

02 The work space is that portion of the highway closed to road users and set aside for workers, equipment, and material, and a shadow vehicle if one is used upstream. Work spaces are usually delineated for road users by channelizing devices or, to exclude vehicles and pedestrians, by temporary barriers.

Option:

03 The work space may be stationary or may move as work progresses.

Guidance:

04 Since there might be several work spaces (some even separated by several miles) within the project limits, each work space should be adequately signed to inform road users and reduce confusion.

Support:

05 The traffic space is the portion of the highway in which road users are routed through the activity area.

03 Longer tapers are not necessarily better than shorter tapers (particularly in urban areas with characteristics such as short block lengths or driveways) because extended tapers tend to encourage sluggish operation and to encourage drivers to delay lane changes unnecessarily. The test concerning adequate lengths of tapers involves observation of driver performance after TTC plans are put into effect.

Guidance:

04 The appropriate taper length (L) should be determined using the criteria shown in Tables 6C-3 and 6C-4.

05 The maximum distance in feet between devices in a taper should not exceed 1.0 times the speed limit in mph.

Support:

06 A merging taper requires the longest distance because drivers are required to merge into common road space.

Guidance:

07 A merging taper should be long enough to enable merging drivers to have adequate advance warning and sufficient length to adjust their speeds and merge into an adjacent lane before the downstream end of the transition.

Support:

08 A shifting taper is used when a lateral shift is needed. When more space is available, a longer than minimum taper distance can be beneficial. Changes in alignment can also be accomplished by using horizontal curves designed for normal highway speeds.

Guidance:

09 A shifting taper should have a length of approximately 1/2 L (see Tables 6C-3 and 6C-4).

Support:

10 A shoulder taper might be beneficial on a high-speed roadway where shoulders are part of the activity area and are closed, or when improved shoulders might be mistaken as a driving lane. In these instances, the same type, but abbreviated, closure procedures used on a normal portion of the roadway can be used.

Guidance:

11 If used, shoulder tapers should have a length of approximately 1/3 L (see Tables 6C-3 and 6C-4). If a shoulder is used as a travel lane, either through practice or during a TTC activity, a normal merging or shifting taper should be used.

Support:

12 A downstream taper might be useful in termination areas to provide a visual cue to the driver that access is available back into the original lane or path that was closed.

Guidance:

13 If used, a downstream taper should have a minimum length of 50 feet and a maximum length of 100 feet with devices placed at a spacing of approximately 20 feet.

Support:

14 The one-lane, two-way taper is used in advance of an activity area that occupies part of a two-way roadway in such a way that a portion of the road is used alternately by traffic in each direction.

Guidance:

15 Traffic should be controlled by a flagger or temporary traffic control signal (if sight distance is limited), or a STOP or YIELD sign. A short taper having a minimum length of 50 feet and a maximum length of 100 feet with channelizing devices at approximately 20-foot spacing should be used to guide traffic into the one-lane section, and a downstream taper should be used to guide traffic back into their original lane.

Table 6C-3. Taper Length Criteria for Temporary Traffic Control Zones

Type of Taper	Taper Length
Merging Taper	at least L
Shifting Taper	at least 0.5 L
Shoulder Taper	at least 0.33 L
One-Lane, Two-Way Traffic Taper	50 feet minimum, 100 feet maximum
Downstream Taper	50 feet minimum, 100 feet maximum

Note: Use Table 6C-4 to calculate L

Table 6C-4. Formulas for Determining Taper Length

Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet
W = width of offset in feet
S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

**Notes for Figure 6H-10—Typical Application 10
Lane Closure on a Two-Lane Road Using Flaggers**

Option:

1. For low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).
2. The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short-duration operations.
3. Flashing warning lights and/or flags may be used to call attention to the advance warning signs. A BE PREPARED TO STOP sign may be added to the sign series.

Guidance:

4. The buffer space should be extended so that the two-way traffic taper is placed before a horizontal (or crest vertical) curve to provide adequate sight distance for the flagger and a queue of stopped vehicles.

Standard:

- 5. At night, flagger stations shall be illuminated, except in emergencies.**

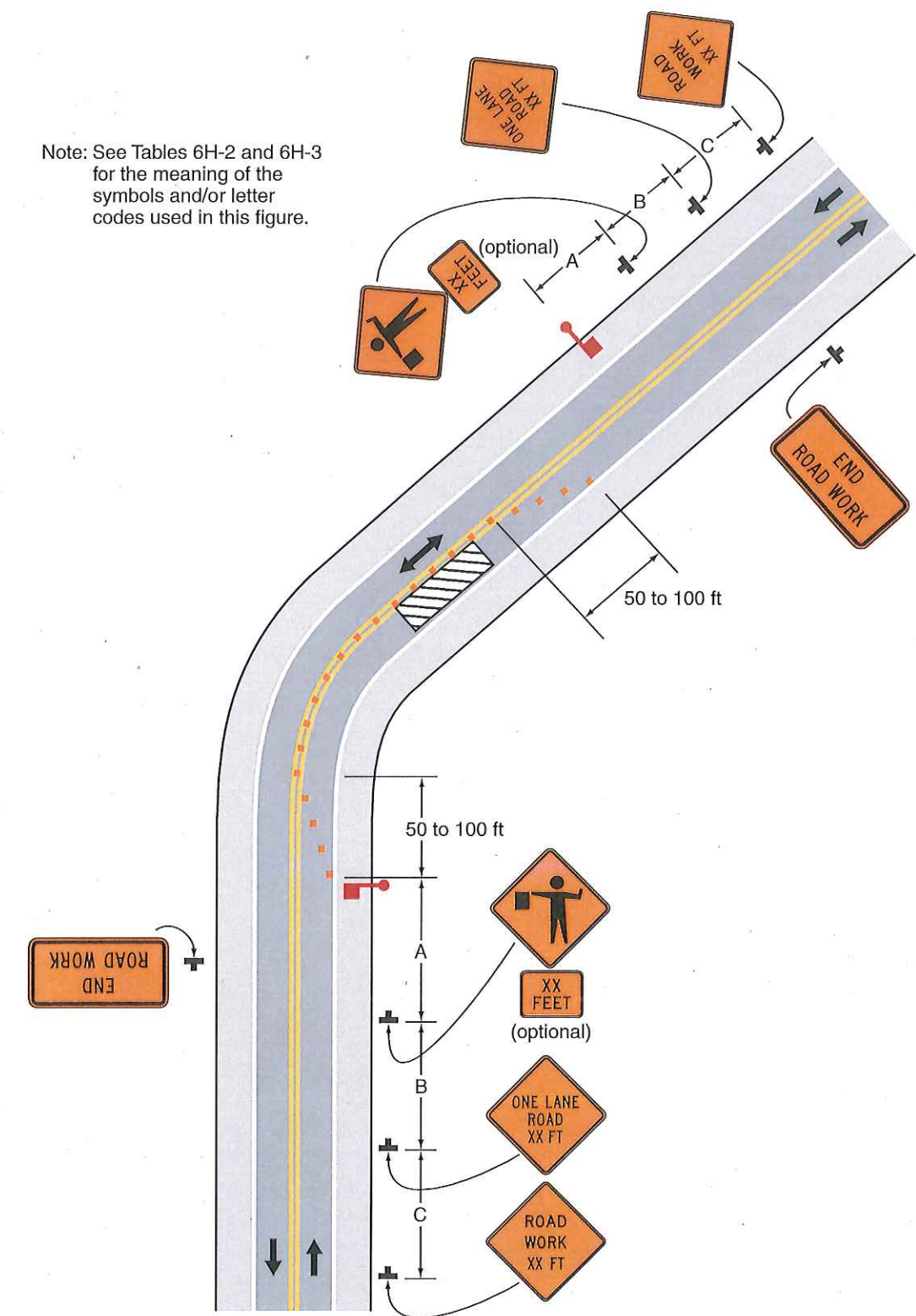
Guidance:

6. *When used, the BE PREPARED TO STOP sign should be located between the Flagger sign and the ONE LANE ROAD sign.*
7. *When a grade crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the grade crossing, the TTC zone should be extended so that the transition area precedes the grade crossing.*
8. *When a grade crossing equipped with active warning devices exists within the activity area, provisions should be made for keeping flaggers informed as to the activation status of these warning devices.*
9. *When a grade crossing exists within the activity area, drivers operating on the left-hand side of the normal center line should be provided with comparable warning devices as for drivers operating on the right-hand side of the normal center line.*
10. *Early coordination with the railroad company or light rail transit agency should occur before work starts.*

Option:

11. A flagger or a uniformed law enforcement officer may be used at the grade crossing to minimize the probability that vehicles are stopped within 15 feet of the grade crossing, measured from both sides of the outside rails.

Figure 6H-10. Lane Closure on a Two-Lane Road Using Flaggers (TA-10)



Typical Application 10